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United States
Department of
Agriculture

Forest
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Forest
Pest
Management

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File Code: 3420

Date: August 6, 1997

Subject: Field evaluation of certification stand (Report # NE 97-9)

To: Barb Zylstra, Culturist, Big Valley RD, Modoc NF

At the request of Barb Zylstra, Culturist, Big Valley RD, Modoc NF, I conducted a field evaluation of a ponderosa pine stand on the Double Head Ranger District on July 2, 1997. The stand is being used by Barb to prepare a prescription for Region 5 Silvicultural Certification. The objectives of my field visit were to: 1) determine if any insect-related damage and/or mortality was present, 2) assess if the damage or mortality would interfere with management objectives, and 3) provide alternatives if management actions were warranted.

The stand is located northwest of Canby (T43N R7E Sections 5, 6, 8) at an elevation of 4470 feet (see attached map). It borders Hwy. 139 and is being managed to grow large trees primarily for visuals. The stand is comprised of 50 acres of ponderosa pine with a minor component of juniper. Tree diameters range from about 5 to 32 in. DBH. The oldest trees are about 200 years old and the site is a Dunning 5. Most of the stand was consumed in the Damon fire which occurred during early August of last year. The fire consumed whole crowns of most trees in the stand. All dead and dying trees >10 in. DBH have been marked for removal. Restoration of the site with ponderosa pine is planned after salvage harvesting.

No insects of significant concern were found in the stand. Red turpentine beetles (RTB), Dendroctonus valens, and wood borers were present in a few of the fire killed trees. However, neither of these would be expected to cause damage to the residual live trees.

Discussion

It is the intent of the Ranger District to retain all trees that are likely to survive their fire-related injuries. Fire injured trees which were still alive this spring are being examined and marked for retention or removal. Bud and twig kill, foliage kill, and cambium kill need to be considered in judging the survivability of trees after a fire. In ponderosa and Jeffrey pine extensive heat killing of foliage may sometimes occur with only light damage to buds and twigs (Wagener 1961). Therefore, examining the trees the season after the fire provides for a more accurate assessment of crown condition.

Cambium injury is typically heaviest of the lee side of the tree with respect to the direction of run of the fire and on the uphill side of trees located on slopes. The degree and location of bark charring is not a consistent indicator of cambium damage. Enough trees should be sampled with an ax to provide for reasonably accurate judgments regarding cambium injury. General

guidelines to predict survivability of ponderosa pine for a late season fire include the following: 1) 10% or more green crown, 2) 50% or more live crown and 3) <25% cambium injury. These are general specifications for an above average site quality with good growth and vigor prior to the fire. Trees in the certification stand are on a poor site and have recently experienced an extended drought period so the above criteria may need to be adjusted based on those factors.

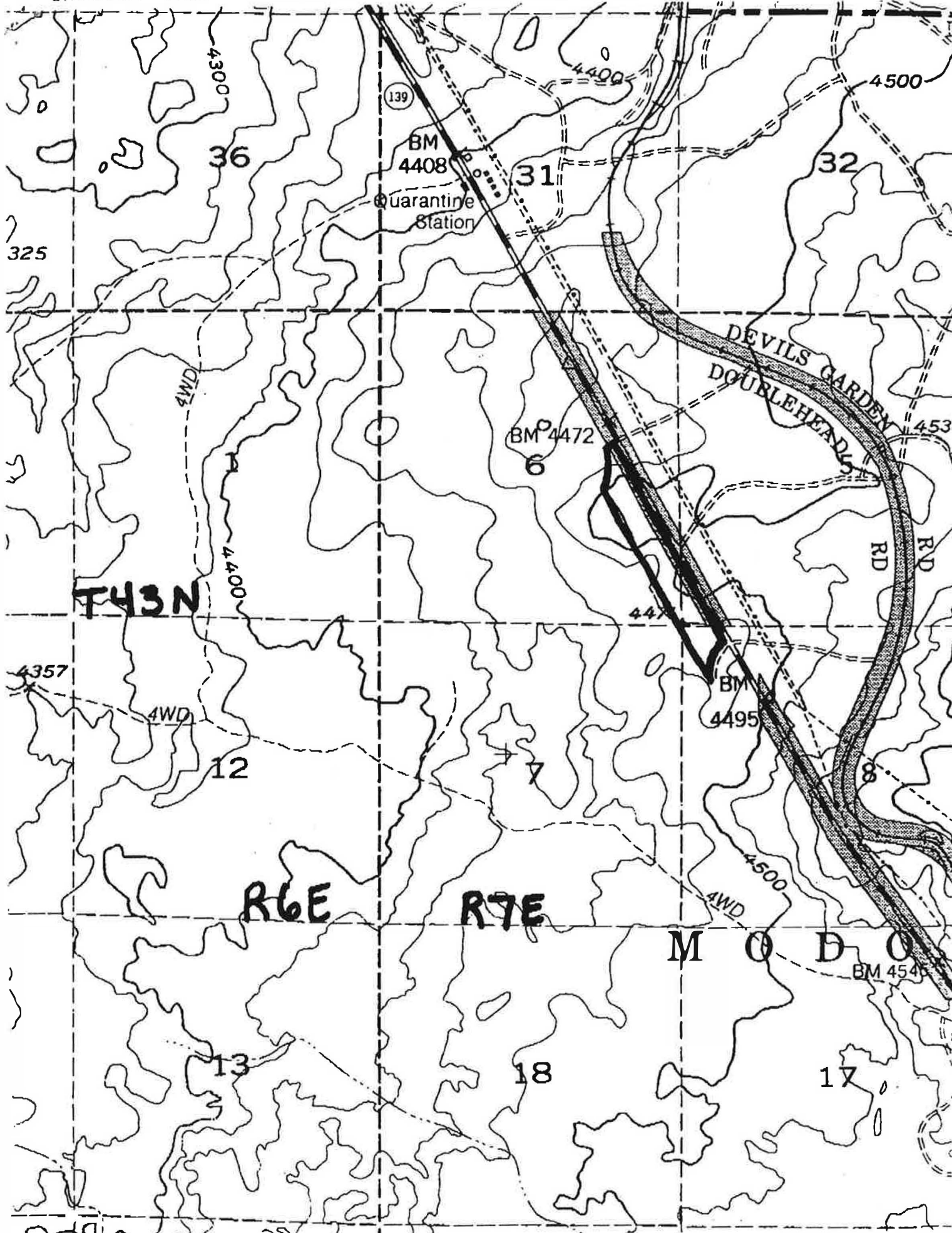
Fire damaged trees are weakened physiologically and may be more susceptible to bark beetle attack for a few years. As noted above, only red turpentine beetle attacks were present and these were on trees that were killed by the fire. Attacks by RTB may occur on live trees as well, however, unless attacks are numerous and above DBH they are not likely to have an effect on tree survival. The stand should be monitored for post-fire bark beetle attacks (western pine beetle and mountain pine beetle) until the salvage logging takes place. Dependent upon management objectives, infested trees could be removed at that time. Care should be taken during salvage harvesting to limit mechanical damage to residual trees. Treating freshly cut stumps with borax will provide the biological benefit of preventing infection by annosus root disease. Stumps of fire killed trees should be treated if there is any question on susceptibility to infection.

Good maintenance of the stand after planting will provide the best defense against unacceptable levels of insect-related damage and/or mortality. Reducing competition by maintaining appropriate stocking levels and minimizing vegetation around the trees will promote growth and vigor and lower tree susceptibility to most insects associated with regeneration. Dense amounts of brush and grass species for wildlife and diversity may not be compatible with maintaining good growth and vigor of the ponderosa pine trees. The stocking level of conifers should take into account what the site can support including any desired brush and grass components. The vegetation that has established post-fire may present some problems with conifer seedling survival and growth. Some type of management activity (i.e. herbicides, hand grubbing, mats) may be desired to give the seedlings a competitive advantage when established.

If you have any questions or need additional assistance please contact me at 916-252-6667.



Sheri Lee Smith
Entomologist
NE CA Shared Service Area





UNITED STATES
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REPLY TO: 3430 Evaluation

DATE: November 1, 1984

SUBJECT: Pathological/Entomological Stand Examinations
Groveland Ranger District (Report No. 84-41)

TO: Forest Supervisor, Stanislaus National Forest

At your request, two stands on the Groveland Ranger District were appraised for current and potential insect and disease problems by pathologist John Kliejumas and entomologist Dave Schultz on July 19, 1984. Prescriptions are being written for the two stands as a part of the silvicultural certification of Gary Deboi and John Schmechel. Following are Forest Pest Management's observations and management considerations for the two stands.

STAND I (Gary Deboi)

Observations

The 90-year-old mixed conifer stand is composed of Douglas-fir, ponderosa pine, incense-cedar, and sugar pine. The stand is on one of the better sites on the District (Site Class 80). Gary's prescription is for commercial thinning.

The only pest noted was red ring rot, caused by Phellinus pini, on Douglas-fir. Conks of the fungus were common in portions of the stand, with some Douglas-fir having 4 to 5 conks in the butt log. Gary's specific concern regarding the rot was whether leaving trees with conks will provide inoculum for infection of other trees, or if removing trees with conks will reduce inoculum and subsequent decay in the leave trees, and how rapidly decay would progress in leave trees with conks.

Management Considerations

The effects of P. pini in second growth, relatively young Douglas-fir trees in mixed conifer stands have not been critically examined in California. Most of the information available on the red ring rot fungus is for old growth Douglas-fir in relatively pure stands in northern California and in the Northwest. The Tahoe, Klamath, and Shasta-Trinity National Forests have broad, general guidelines





for grade-reductions, but none are available for the Stanislaus because of the low volume of Douglas-fir present. However, some general guidelines are in the literature.

Reducing to a significant extent the number of spores available for infection of other trees in the stand by removing trees with conks is, at best, a doubtful practice. Removing trees solely for the purpose of reducing inoculum would be expensive, and, because inoculum from adjacent stands would still be available, would not decrease the risk of new infections or lessen the increase in decay. This does not mean that, when marking trees, red ring rot should be ignored.

Conks of the red ring rot fungus are an indicator of internal decay. Numerous guidelines are available that relate the amount of decay associated with a conk or conks, but they were developed in other areas. Cull factors vary from stand to stand, and indicators or cull factors developed from experience in one area should not be applied elsewhere without verification. The only way to determine the extent of internal decay in relation to the external indicators (conks) in Gary's stand is to cut a few trees and examine them.

The numerous *P. pini* conks on Douglas-fir indicate that internal decay is present and that affected trees may not be putting on net growth. When increase in volume through growth is offset by loss of volume through decay, a decline in net volume will occur and the trees have reached their pathological rotation. In Gary's stand, the Douglas-firs with numerous conks are probably not contributing to future stand growth. If they are (a question which can only be answered by felling and examining trees), the value increase would need to offset the volume decreases.

The question of removing trees with indicators of decay now or leaving them until the next scheduled cut is primarily a question of economics. If the District can economically afford to drop cull trees, they should do so because the cull trees are occupying growing space that could be better utilized by unaffected trees. If the cost prohibits removal now, development of decay in the heartwood can be reduced by shortening the rotation.

STAND II (John Schmechel)

Observations

John's stand, located near Rush Creek, is a 105-year-old mixed conifer stand with restrictions on available prescriptions. Because the stand is within a view area (adjacent to Highway 120 and near the entrance to Yosemite National Park) and adjacent to Rush Creek, an all-aged stand needs to be maintained. John's prescription is for group selection.





Pests noted in the stand were relatively minor. Light infestations of western dwarf mistletoe (Arceuthobium campylopodum) were present in a few overstory ponderosa pines; only scattered infections were seen in adjacent understory pines. True mistletoe (Phoradendron bolleanum ssp. pauciflorum) was infecting white firs in one area. Elytroderma disease (Elytroderma deformans) was noted on one ponderosa pine. Although annosus root disease, caused by Fomes annosus, was suspected, its presence in true firs or pines could not be confirmed. There was no evidence that, if annosus root disease is present in the stand, it was causing any impact.

Management Considerations

Of the minor pests present, western dwarf mistletoe has the most potential to interfere with management objectives and is the only pest in John's stand that will respond to silvicultural treatment. Dwarf mistletoe infections are currently light and scattered. As a result, it will be many decades before it seriously impacts the overstory. Because the prescription is to maintain an all-aged stand through group selection, portions of the understory are likely to become infected. If dwarf mistletoe infections are totally ignored in selection of group boundaries, infections will slowly increase to the point that maintaining an all aged stand becomes impossible. Techniques which would reduce the impact of dwarf mistletoe in an all aged stand include adjusting the boundary of groups selected for harvest to include all infected trees; harvesting, girdling or dropping infected individual trees; and favoring non-host regeneration near infected pines.

If Gary or John have further questions regarding the effects of pests on their prescriptions, have them contact John Kliejunas or Dave Schultz (556-6520) of my Staff.

WILFRED L. FREEMAN, JR.
Director of Forest Pest Management

